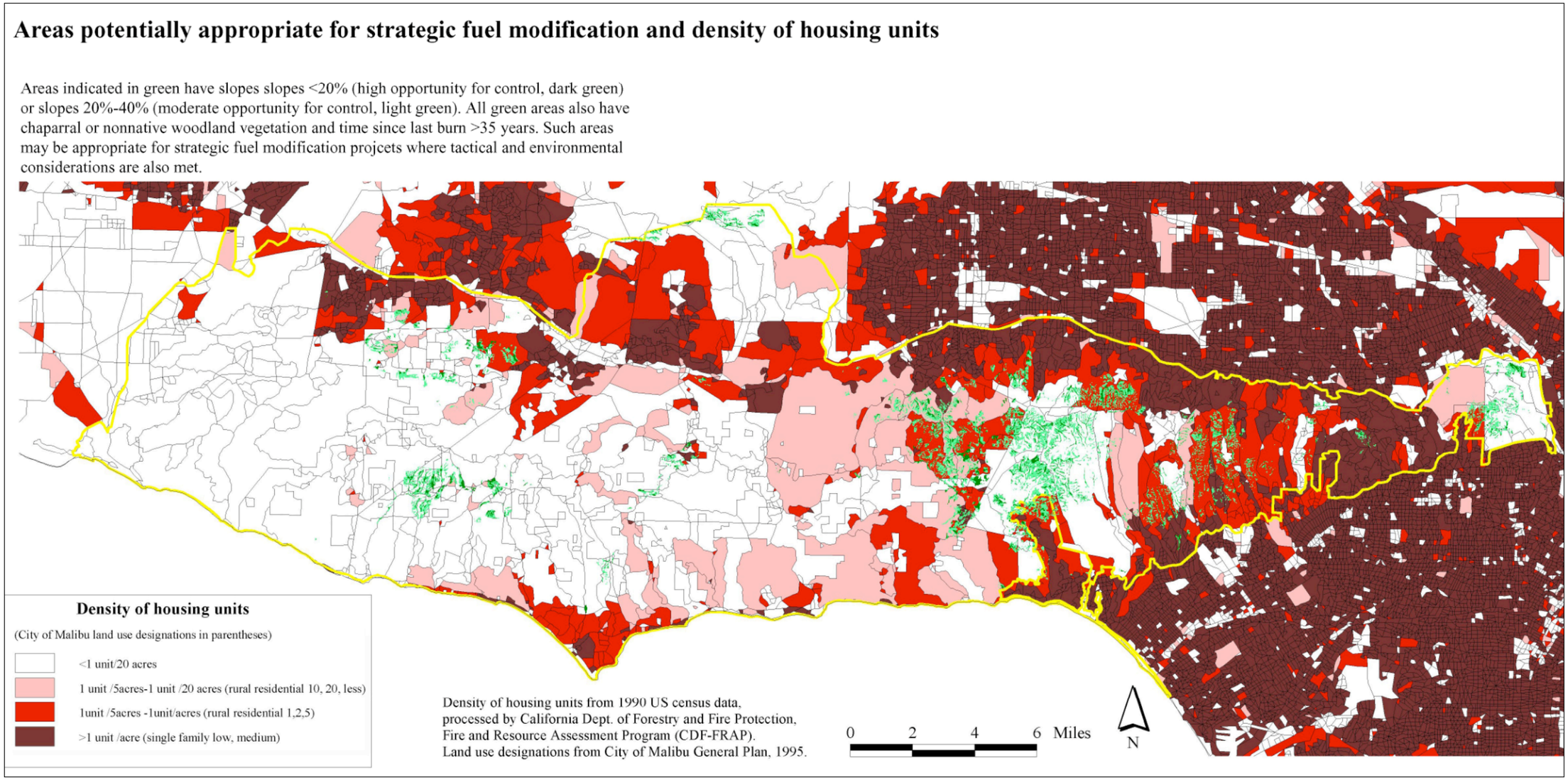
Figure 3-21 Potentially Appropriate Strategic Fuel Modification Areas in Proximity to High Density Development



Ecological Values

Although the plant communities of the Santa Monica Mountains are tolerant of wildfire and resilient to a relatively wide variation in the fire return interval, it has been shown that chaparral communities can be degraded by high fire frequencies with a short fire return interval (Keeley and Fotheringham, 2003). Because of the high fire frequency in the mountains and the low fire return interval of 32 years, ecological risk to native plant communities from fire is almost exclusively due to too short a fire return interval. No plant communities are considered to be at risk from an excessively long fire free period. Only 1.6% of the vegetation of the SMMNRA is more than 77 years old.

Because chaparral is a fire climax community in which biomass rapidly re-accumulates after fire or thinning, there is a question as to whether fuels treatments can maintain the beneficial effects on fire behavior long enough to sustain the benefit of reduced fire risk before treatments must be repeated. The trade-off between maintaining fire hazard reduction and limiting ecological risk to a chaparral plant community is illustrated in Figure 3-22. Figure 3-21 is based on chaparral dominated by *Ceanothus megacarpus*, an obligate seeder chaparral species. The change in the fire hazard curve shows that fire hazard is virtually non-existent in the first years following treatment but then gradually accumulates and reaches a threshold value sometime between 25-35 years post-fire. The benefits from treatment with respect to reducing fire hazard are maximum in the first years following treatment. Conversely, ecological risk for an obligately seeding chaparral species is highest in the first years post-treatment when a repeat fire would eliminate the population by killing all seedlings before the seed bank had been replenished. Ecological risk to the community gradually declines until approximately 15 years post-treatment when sufficient seed is available to replace the population in the event of another fire. Similar curves can be generated for any plant community based on its fire/fuel characteristics, the regeneration mode of the dominant species, and its sensitivity to repeated fires.

Figure 3-22 Change in Fire Hazard and Ecological Risk Following Fuels Treatment